

The thesis deals with optimization problems which arise at distribution planning. These problems can often be easily formulated as integer programming problems, but rarely can be solved using mixed integer programming techniques. Therefore, it is necessary to study the efficiency of heuristic algorithms. The main focus of the thesis is on the vehicle routing problem with time windows. A tabu search algorithm for this problem was developed and implemented. It uses integer programming to solve the set partitioning problem in order to find optimal distribution of all customers into feasible routes found during the search. The results of the classical integer programming approach, basic insertion heuristic and presented tabu search algorithm are compared in a numerical study.